

New York State Department of Environmental Conservation

Division of Water

Bureau of Flood Protection and Dam Safety, 4th Floor

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A Template for an Inspection And Maintenance Plan for Dams

Purpose:

Pursuant to New York State Environmental Conservation Law Article 15-0507: **Dam owners shall at all times operate and maintain the dam and all appurtenant works in a safe condition.** The purpose of this document is to assist dam owners in developing a Dam Safety Inspection and Maintenance Plan (I&M Plan) as required by NYCRR Part 673.6. The I&M Plan should be used by the owner and kept on file, but does not need to be submitted to the Department unless requested.

This template reflects the general components of an I&M plan for the average dam. Use of this format does not guarantee acceptance of the Inspection and Maintenance Plan by the Department. Dam owners may use other guidance and formats so long as the plan complies with 6 NYCRR Part 673.6.

Additional narrative space should be added as needed.

TEMPLATE

An I&M Plan should indicate who prepared it, when it was last revised and where the Plan is located, as in the following:

Prepared By: Name: _____
Title: _____
Company: _____

Date Last Revised: _____

Location of Dam Inspection and Maintenance Plan: _____

Part 1: Dam Data

Dam Name: _____

Dam State Identification Number: _____

Federal Energy Regulatory Commission Identification Number, if applicable: _____

Dam Hazard Classification: _____

(C-High Hazard, B-Intermediate Hazard, A-Low Hazard)

Date of last Hazard Class Verification: _____

Dam Location: County: _____ Town/City/Village: _____

Latitude: _____ Longitude: _____

Dam Type: _____ (embankment, concrete, combination, other)

Year of original construction: _____ Year of last construction activity: _____

Name of last Engineer and Builder: _____

Dam Use(s): _____

(water supply, flood control, energy generation, recreation, irrigation, pollution control, other)

Dam Owner(s) Name: _____

Dam Owner(s) Mailing Address: _____

Dam Owner(s) Telephone Number: _____

Dam Owner(s) Facsimile Number: _____

Dam Owner(s) E-Mail: _____

Reservoir and stream (inflow and outflow) name and class (and/or navigability?):

Associated wetlands and other natural resources of special concern:

Dam height: _____ feet

(as measured from downstream toe at lowest point to top of dam)

Dam Crest length: _____ feet

Dam Crest width: _____ feet

Maximum Impoundment Volume: _____ gallons

All Counties/Towns/Cities/Villages within downstream inundation zone:

(B and C Hazard Class dam owners should refer to their Emergency Action Plans)

Normal Pool Elevation: _____

(set by crest of service spillway)

Auxiliary/Emergency Spillway Elevation: _____

Maximum Design Water Surface Elevation: _____

(specify vertical datum used: local, barge canal, NGVD 29, NAVD 88, IGLD)

Part II: Dam Inspection and Maintenance

Primary person responsible for Dam Operations: _____
 (name, title, phone number)

INSPECTION - This section of your I&M Plan should indicate who, how frequent, and what is involved in an inspection. A form or forms should be developed and included which can be used for each type of inspection or items to be monitored. Each dam will typically have specific features which will require monitoring. Such features may be adapted from past inspection reports that were either prepared by NYSDEC or the owner's engineer. Include a table, such as the following, to identify the various type of inspections.

<u>INSPECTION TYPE</u>	<u>FREQUENCY</u>	<u>ITEMS TO INSPECT/MONITOR</u>	<u>PERSONNEL</u>
Informal (i.e. storm events, snow melts)	As needed, after event	Spillway/Aux. Spillway/Seepage	Damtender/Owner
Informal	Monthly/Bi-Monthly/Other	Seepage/Wet Areas/ Toe Drain Flow/ Pool Level/ Trash Rack Debris/ Slides/Cracks/ Rodent Activity/ Vegetation/ Concrete Surfaces/ Vandalism/ Piezometers	Damtender/Owner
Maintenance	Semi-Annually/ Annually/ Other	<i>In addition to above items:</i> Slope Protection/Riprap Erosion/ Condition of Vegetative Cover/ Spillway and embankment Condition/ Lake Drain Conditions/ Settlement Monuments	Damtender/Owner/ Engineer
Technical	Periodic*	Safety Inspection (See Part 673.12)	Engineer
Technical	Periodic (After initial, every 10 years)	Engineering Assessment (See Part 673.13)	Engineer

* For Class C dams, typical Safety Inspection frequency should be every 2 years,
 For Class B dams, typical Safety Inspection frequency should be every 4 years

MAINTENANCE – Indicate in your I&M Plan the items which will require periodic maintenance. Particular attention should be given to conditions noted on past inspection reports. Examples of typical maintenance are given below. Your dam may consist of some or all of these items and/ or require additional measures, or modified frequencies.

<u>ITEM</u>	<u>FREQUENCY</u>
Mow embankment and emergency spillway	2 times/year
Lubricate and repair as needed lake drain valve mechanism	Annually
Re-establish proper vegetative cover	As needed
Address erosion	As needed
Address rodent damage	As needed
Clean trash rack	As needed
Concrete Maintenance	As needed
Maintain other mechanical equipment	Annually
Replace/ replenish riprap	Annually

OPERATION - Give a summary of all your operation procedures for the dam. Specific procedures for operation of mechanical equipment such as valves should be included here, or attached. Emergency operation should be covered in an Emergency Action Plan (EAP).

Some examples of items that would require operational/ procedural descriptions may include:

- pool level drawdown for the winter season
- exercise (specified frequency – i.e. 2x/year), lubrication of valves
- record keeping (who is maintaining, location)

SAFE RATE DRAWDOWN PLAN - This section should include the method to be used for drawing the impoundment down under emergency and non-emergency conditions. This could include the maximum release rate which will not cause downstream flooding or rapid drawdown damage. Alternative ways to provide for drawdown if needed (i.e. portable pumps, temporary siphons) should also be included. (Hasty, unplanned action during emergency situations could increase the dam failure rate or actually cause failure)

Part III: Training

List of procedures and frequency for training personnel regarding the I&M Plan. Also note other training needs, such as confined space entry procedures per OSHA requirements.

Part IV: Notifications

List of Items Requiring Notification and Notification Procedures pursuant to ECL Part 673. This should consist of at a minimum the following:

Form	Submittal Date
Annual Certification	By January 31, of each year
Incident Report Form (EAP Activation, Flow in Erodible Spillway)	Within 5 days of incident
Notification of Property Transfer	Sale of property where dam is located

Part V: Appendices

Examples of typical appendices include the following:

1. Inspection Forms
2. Past Inspection Reports
3. Reduced Size As-Built Drawings
4. Spillway Rating Curve
5. Drain Rating Curve
6. Pictures

Part VI: Available References

1. *An Owners Guidance Manual for the Inspection and Maintenance of Dams in New York State, DEC June 1987.*
http://www.dec.ny.gov/docs/water_pdf/damguideman.pdf
2. *Guidelines for Design of Dams, DEC Revised January 1989.*
http://www.dec.ny.gov/docs/water_pdf/damguideli.pdf

